



# U.S. SPACE INDUSTRY 'DEEP DIVE' ASSESSMENT

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## Impact of U.S. Export Controls

### Preliminary Findings from the First Waypoint

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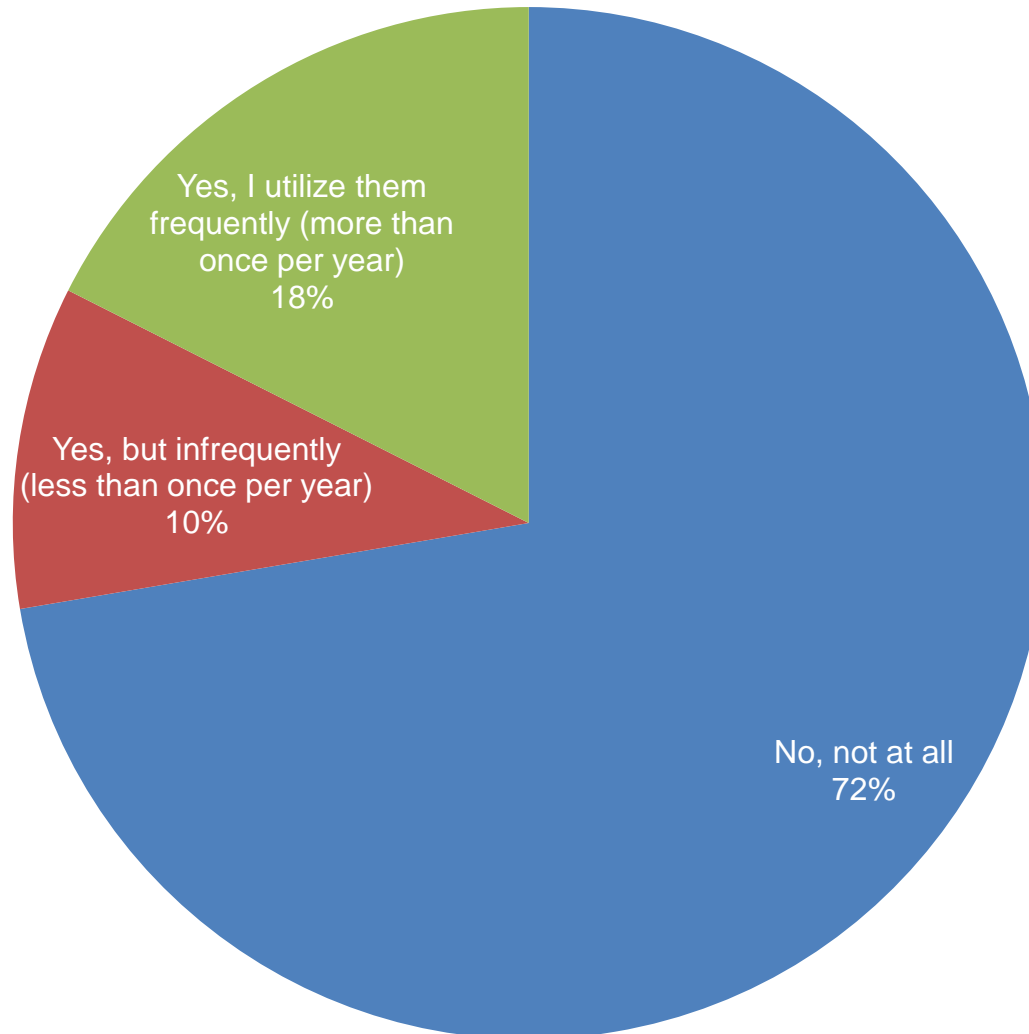
### First Waypoint Respondents by Average Annual Net Sales (2009-2012)

Very Small (Less than \$5M)	433
Small (\$5 – 10M)	140
Medium (\$10 – 50M)	278
Large (\$50 – 250M)	151
Very Large (Greater than \$250M)	85
<b>Total</b>	<b>1,087</b>

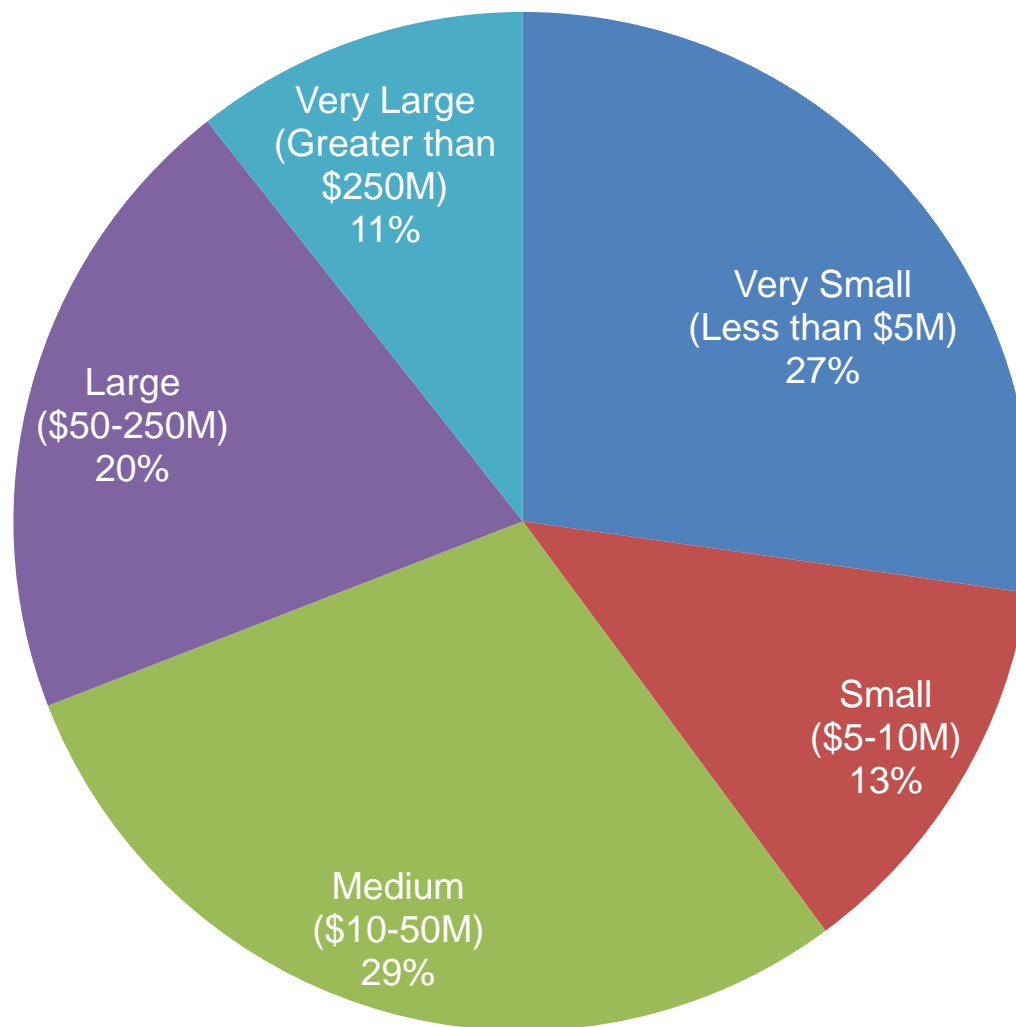
## Utilization of U.S. Export Control System (ITAR/EAR) for Space-Related Products/Services

301 respondents utilize  
U.S. Export Controls in  
some form.

161 respondents  
utilizing export controls  
are self-identified small  
businesses

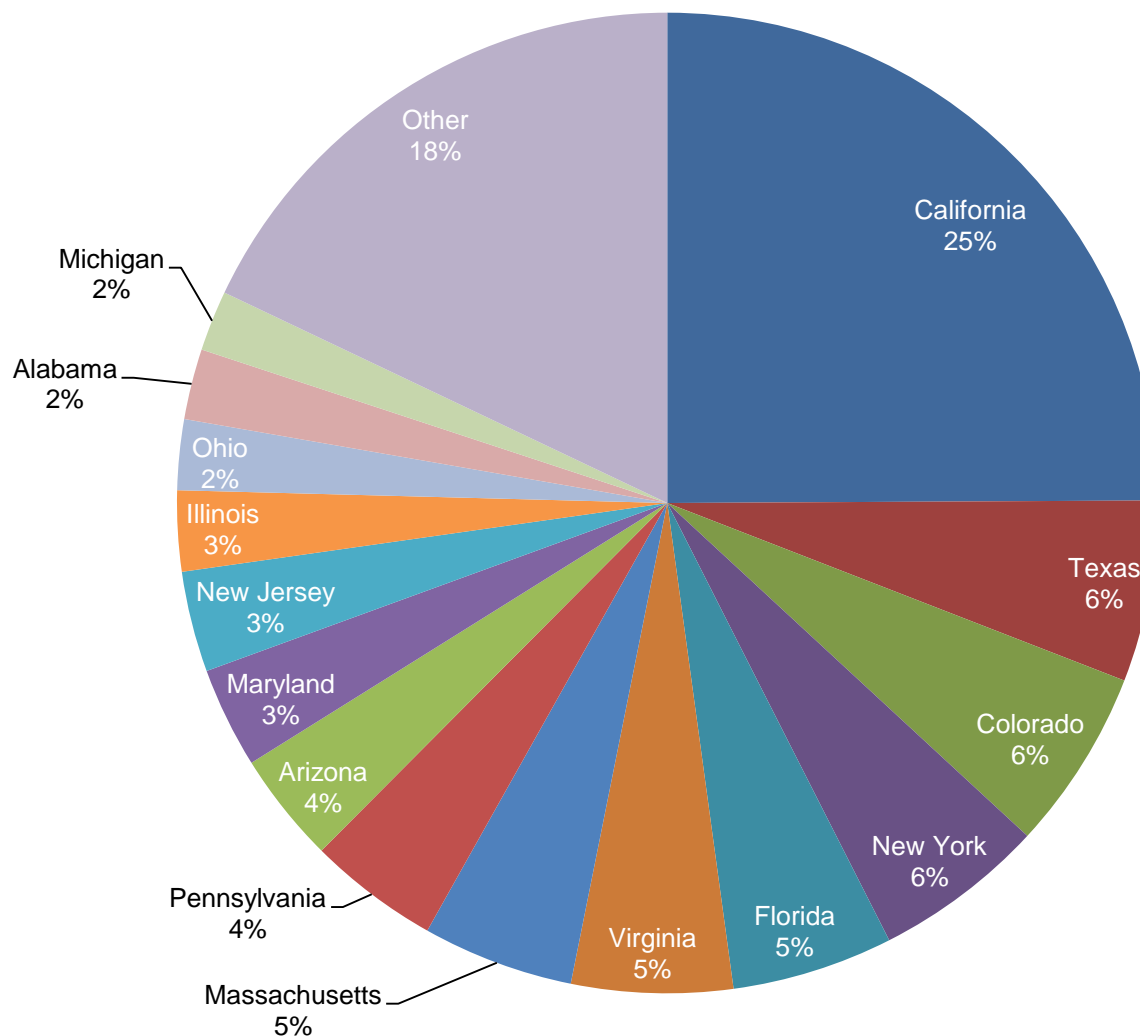


## Size of Respondents Utilizing the U.S. Export Control System (ITAR/EAR) for Space-Related Products/Services\*



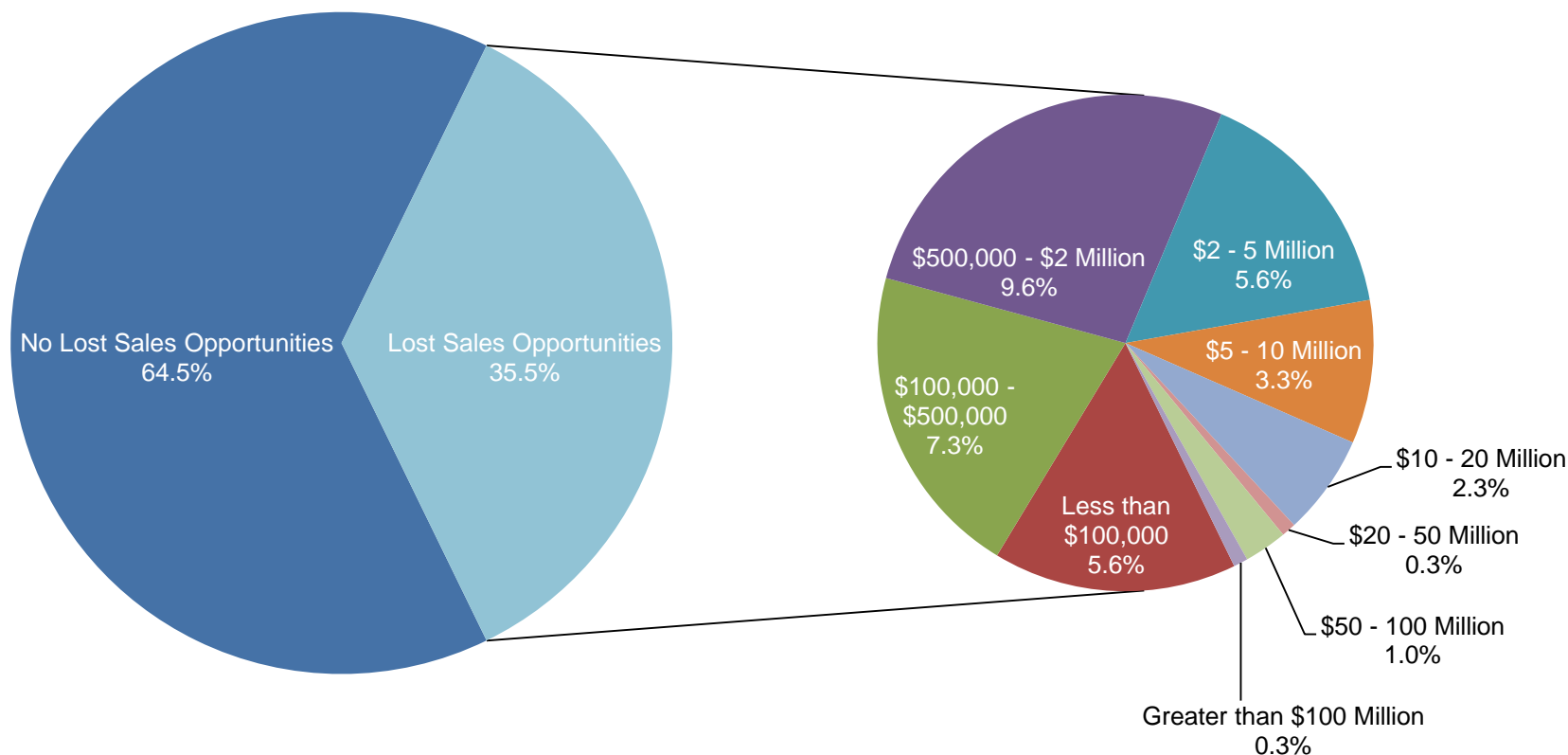
\* Based on 301 respondents that selected "Yes" to utilizing U.S. export controls for space-related products/services.

## Location of Respondents Utilizing the U.S. Export Control System (ITAR/EAR) for Space-Related Products/Services\*



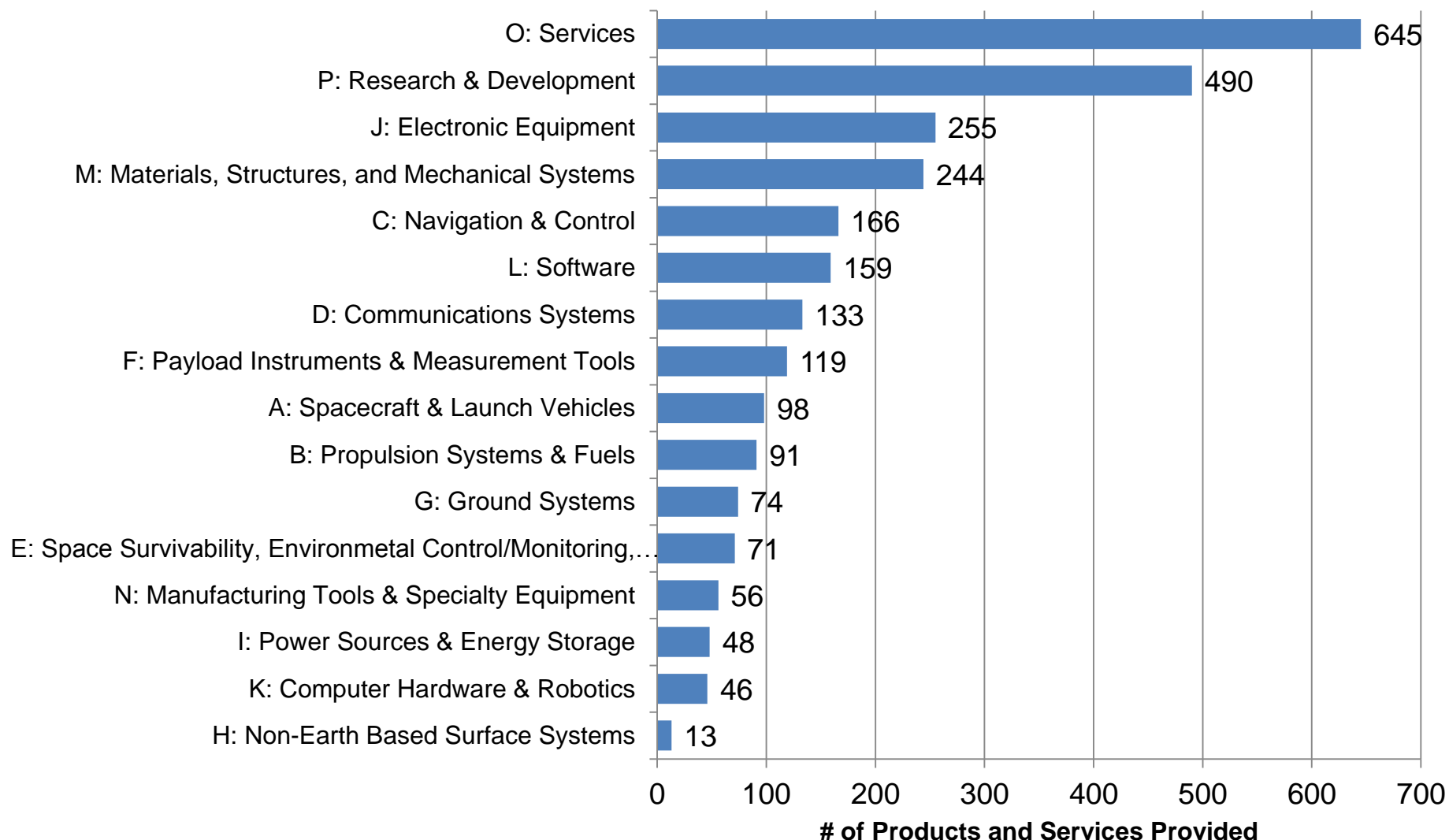
\* Based on 301 respondents that selected "Yes" to utilizing U.S. export controls for space-related products/services.

## Lost Export Sales Opportunities due to U.S. Space-Related Export Controls (2009-2012)\*

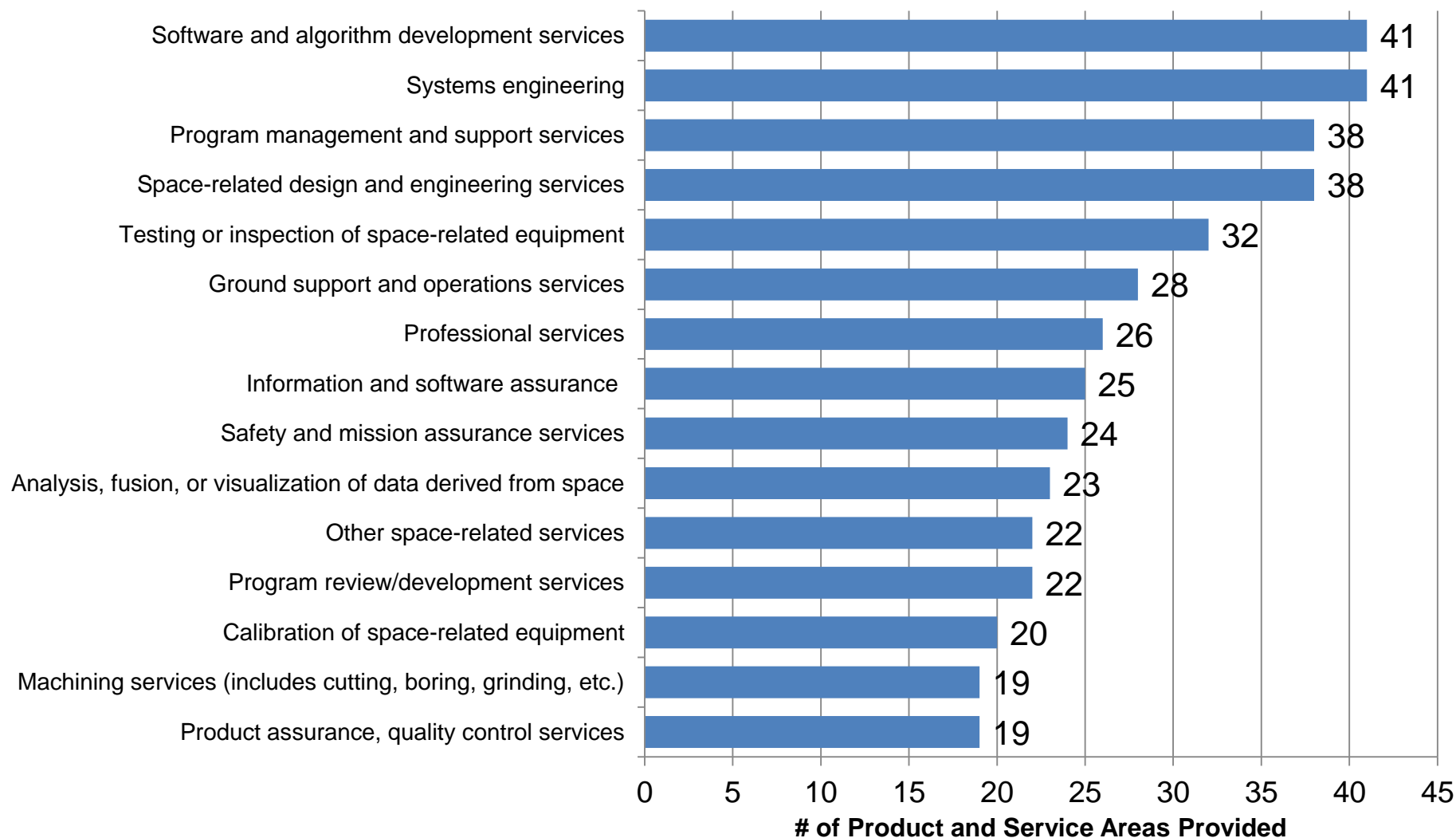


\* Based on 301 respondents that selected "Yes" to utilizing U.S. export controls for space-related products/services.

## Products and Services Provided by Respondents Utilizing U.S. Export Controls – by Segment



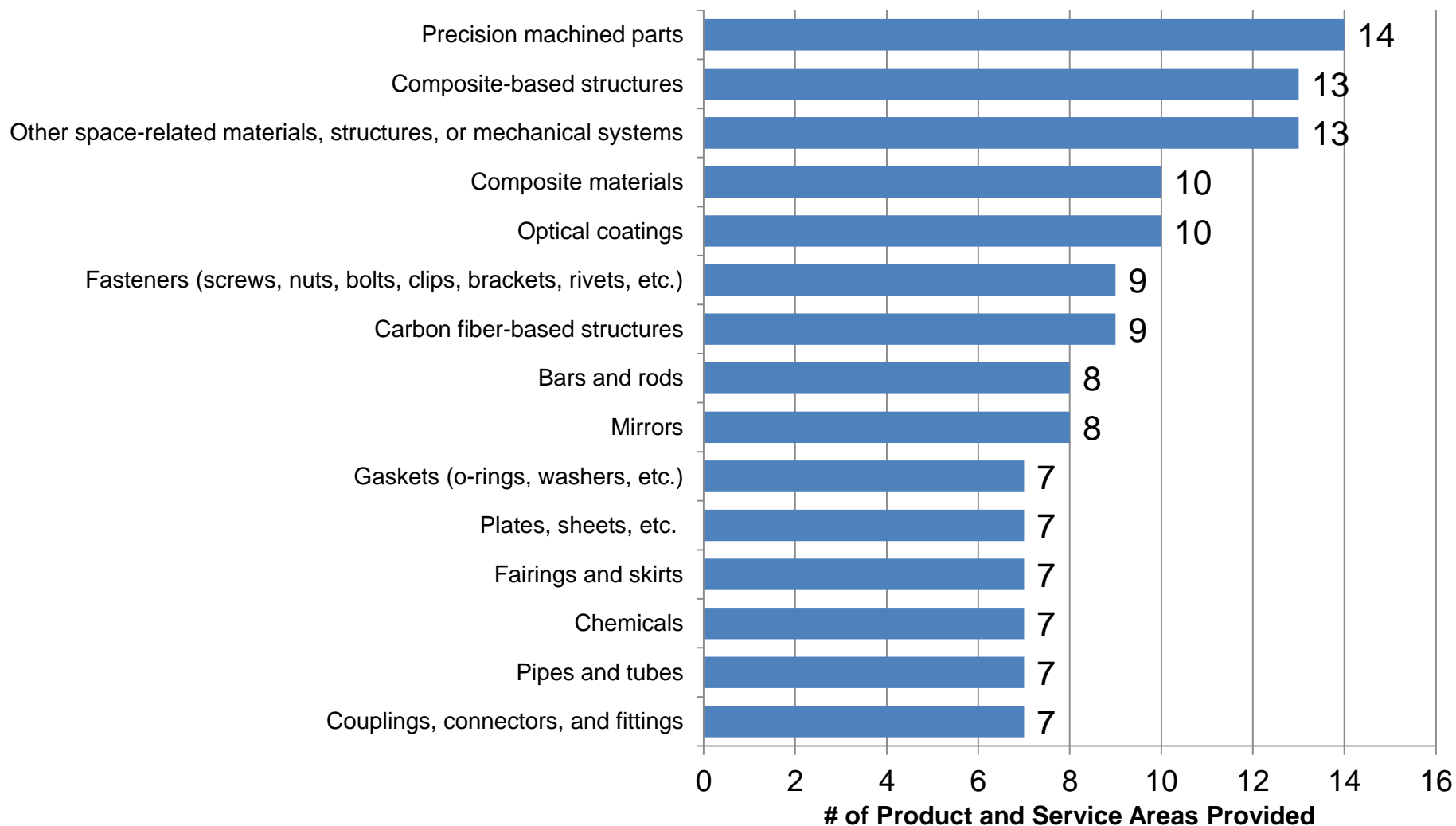
## Top 15 **Service Areas** Provided by Respondents Utilizing U.S. Space-Related Export Controls



Source: U.S. Department of Commerce, Bureau of Industry and Security,  
*U.S. Space Industry Deep Dive*, Preliminary Data - October 2012.

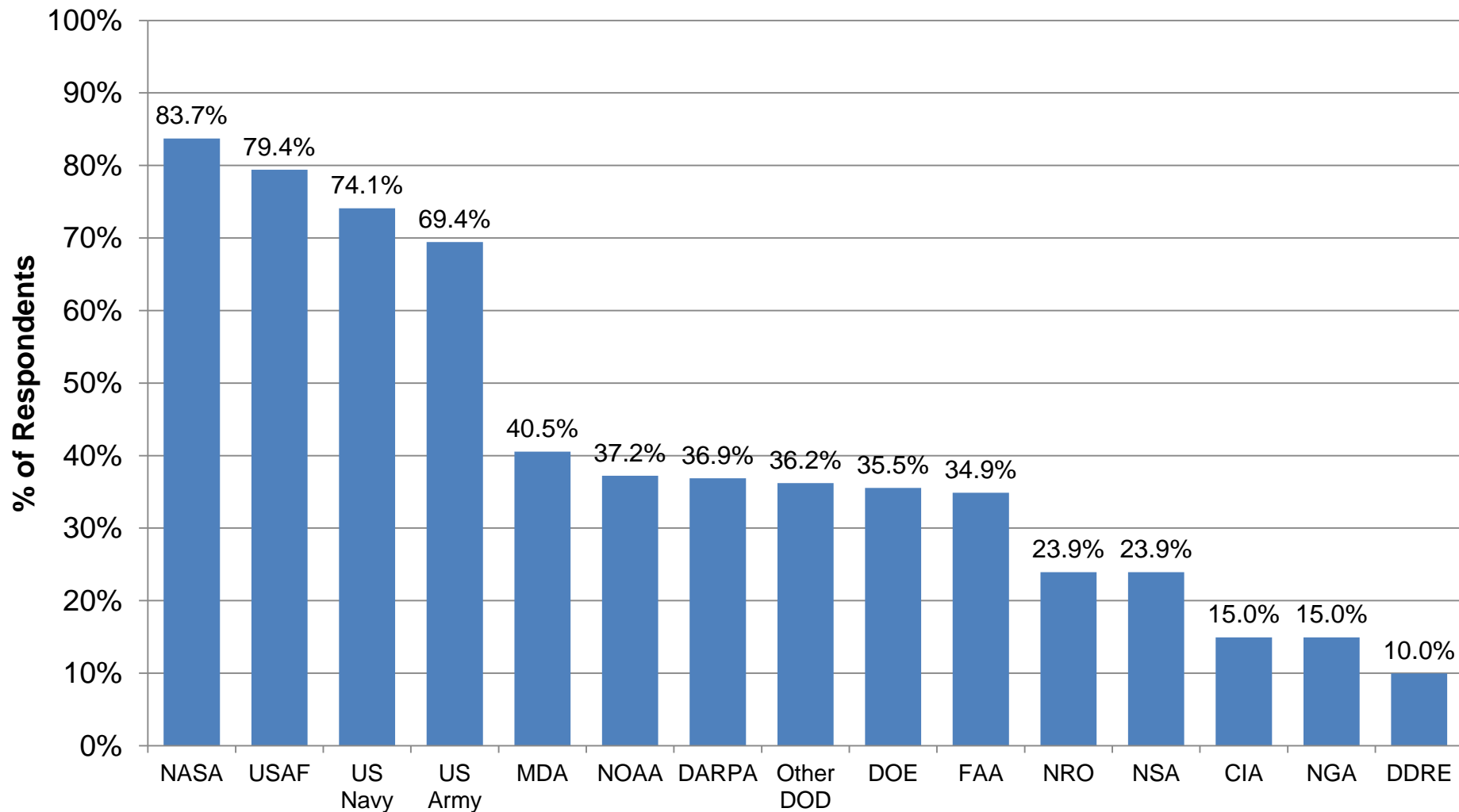


## Top 15 Material, Structure, and Mechanical System Areas Provided by Respondents Utilizing U.S. Space-Related Export Controls



Source: U.S. Department of Commerce, Bureau of Industry and Security,  
*U.S. Space Industry Deep Dive*, Preliminary Data - October 2012.

## Percent of Respondents Utilizing U.S. Export Controls That Support USG Agencies\*



\* Based on any type of support provided by 301 respondents that utilize U.S. export controls.

Source: U.S. Department of Commerce, Bureau of Industry and Security,  
*U.S. Space Industry Deep Dive*, Preliminary Data - October 2012.

## Impacts of U.S. Export Regulations on Space-Related Products and Services

Impact	% of Respondents*
Avoided the export of space-related products or services subject to ITAR-related controls	37.5%
Incentivized non-U.S. organizations to “design-out” or avoid buying U.S. origin space-related products or services	31.2%
Avoided the export of space-related products or services subject to EAR-related controls	26.2%
Incentivized non-U.S. organizations to offer “ITAR-free” space-related products or services	24.6%
Contributed to the creation of non-U.S. companies/business lines in direct competition with the organization’s space-related products or services	19.3%
Caused the abandonment or alteration of space-related business lines	13.0%
Caused re-location of space-related production/R&D facilities outside the United States due to regulatory burdens	3.0%

\* Based on 301 respondents that selected “Yes” to utilizing U.S. export controls for space-related products.

## Moving Forward: What else can we do with this data?

- OTE continues to gather additional data.
- 120+ respondents requested information on export licensing and global export opportunities. OTE is developing a package to send them.
- Keep respondents informed about developments with Export Control Reform (e-mails, letters, information packages, etc.)
- Cross-reference products and services in our survey to ITAR and EAR regulations.
  - Let respondents know when/if their products/services experience a change in control.
  - Provide respondents with USG contacts that deal with the products/services they are attempting to export to promote better understanding of the regulations.
- Reach out to other USG stakeholders to inform them of their suppliers' reliance on export controls.

# Appendix

## “Avoided the export of space-related products or services that are subject to ITAR-related controls”

- “We have not pursued any export sales because the complexity of understanding ITAR regulations exceeds the potential value of the opportunities.” – Small company
- “We had an opportunity to sell magnets to a Canadian producer of products for use in satellites. They claimed the parts they wanted to buy were not EAR or ITAR controlled, but the rules are hard to decipher at times so we took a conservative view at our own loss of sales to insure that we comply with any applicable rules and decided not to sell to them. This would represent about \$100,000 in sales annually.” – Large company
- “Non-US customers do not want to purchase ITAR-controlled goods; and therefore, if we are not able to confirm that a space-related product is not subject to ITAR, customer will not purchase from us.” – Large company
- “Given the burdensome nature of the State Department's licensing process and the lengthy processing time, [respondent] has at times not been able to participate (or not fully participate) in certain activities with international partners that are of interest to our USG sponsors” - University

## “Avoided the export of space-related products or services that are subject to EAR-related controls”

**Finding:** Many exporters (or potential exporters) view export controls as a monolith and do not know and/or understand the difference between the EAR and ITAR.

- “None of the work we do can be exported, as far as we know. Our experience with ITAR/EAR has been very costly and time-consuming, so we are not looking further.” – Very small company
- “In gauging which prospects to follow up with, if there is a likelihood of needing an export license, we usually drop the transaction and send the prospect to look for a solution somewhere else.” – Very small company
- “Due to concerns on exporting the wrong things / information, we shy away from exporting specific products in this realm.” – Large company
- “Too much paperwork, uncertainty and extreme, overzealous enforcement if someone makes a mistake, plus most likely government will reject request. We just watch European companies and China make the sales” - Very small company

## “Caused abandonment or alteration of space-related business lines”

- “Components in new designs have been selected to reduce the number of components subject to ITAR-related controls.” – Large company
- “Some product lines eventually “end-of-life” or become obsolete. Ones that also happen to be ITAR tend to do so at an accelerated pace, since they are avoided by non-US customers and carry additional administrative cost and risk.” – Large company
- “Any product even remotely likely to experience export controls is not considered for development” – Very small company
- “ITAR was one of the considerations for us to leave R&D business.” – Very small company.



## **“Contributed to the creation of non-U.S. companies/business lines in direct competition with the organization’s space-related products or services”**

- “Had ITAR not been in place and so restrictive, it is unlikely that the European space industry would have grown so significantly, so quickly. In particular for us, it is unlikely they would have built their deep space, orbit dynamics capabilities so significantly since it is such a specialized field.” – Medium company
- “Companies in France recently [developed] electroforming capability and compete directly with us for space and ground related antenna feeds” – Medium company
- “3 of the 4 companies for large aluminum rings are in the U.S., however, the 1 company outside the U.S., in France, has nearly at 100% market share of non-U.S. business, as non-U.S. companies do not want to deal with ITAR and EAR, in our opinion.” – Large company
- “ITAR regulation of our space products has been very successful in creating a global network of companies making competing products while ensuring US companies cannot compete.” – Medium company.

## “Incentivized non-U.S. organizations to offer ‘ITAR-free’ space-related products and services”

- “Nearly all other countries have moved to alternative designs that do not include our products. The main reason for this is the restrictions and uncertainty that our export controls cause.” – Very large company
- “Our foreign sales representatives have stated that their principals purchase ITAR-related goods only as a last resort. Their concern is that the US State Dept will disclose to other agencies certain details of their programs.” – Large company
- A non-U.S. based company “has developed an “ITAR-free” version of their [product] satellite platform to provide customers option of launching on the Chinese Long March launcher” – Very large company
- “We developed a non-U.S. Bypass circuit to avoid ITAR in our French product” – Very large company with a non-U.S. parent

## “Altered space-related R&D expenditures”

- “All of the parent company-financed research and development expenditure is performed in their offices in Belgium, because anything space-related developed in the US can not leave the US, as far as we know.” – Very small company
- “To avoid complications, we choose not to invest into product areas that we feel may become heavily regulated.” – Very small company
- “Why develop products with limited customers?” – Very small company
- “Export restrictions including ITAR preclude us from hiring non-US R&D personnel who could be instrumental in helping us develop space-related tech.” – Very small company
- “We usually will not even consider using a foreign organization or foreign university for R&D activities related to ITAR-controlled products and/or we have delayed and cancelled funding joint development with foreign partners who have more expertise in certain technology areas due to export control requirements and proviso restrictions.” – Very large company
- “Universities found it more difficult to participate in space research after satellite oversight was moved from DOC to the State Department.” – University

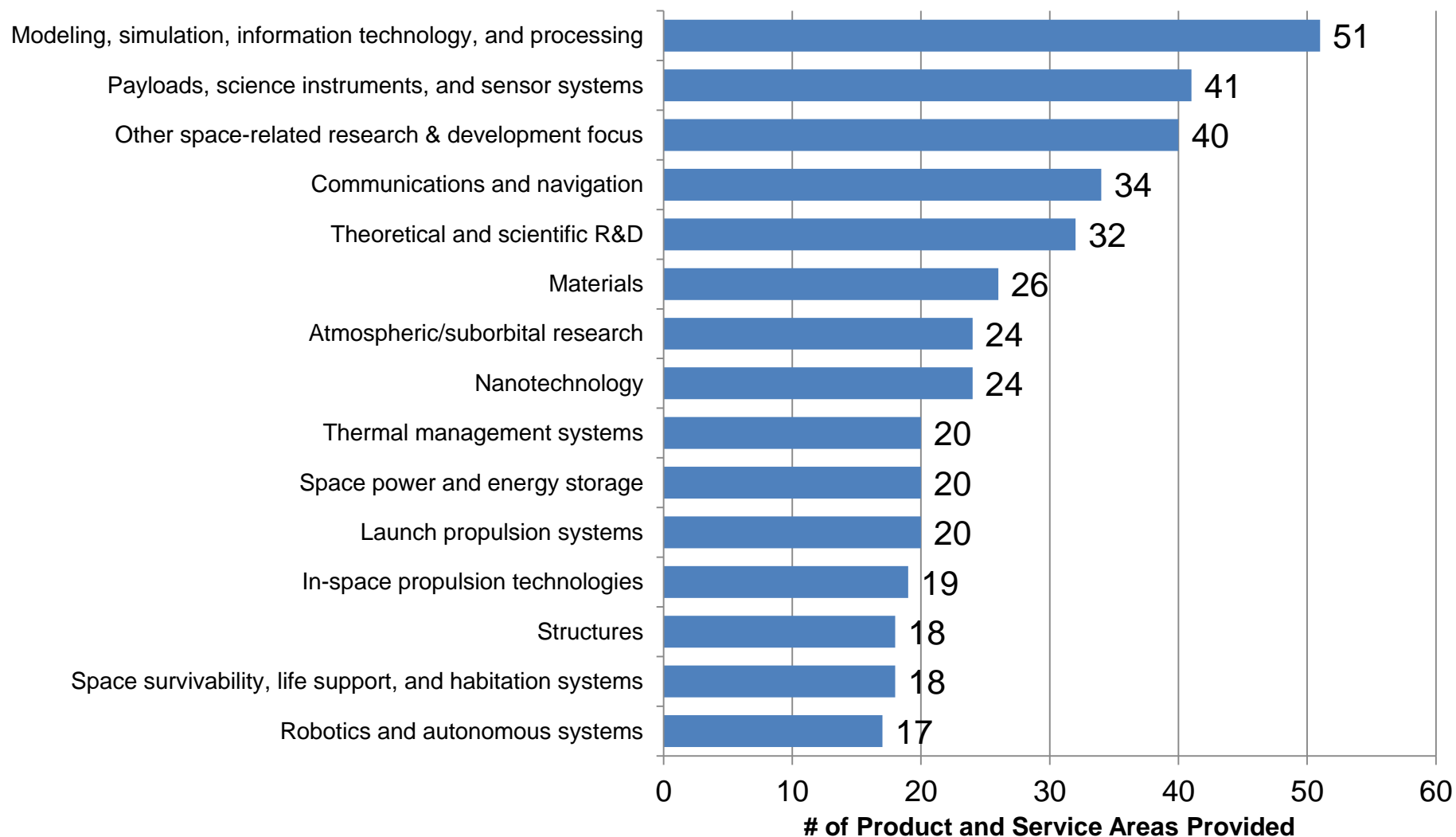
## “Incentivized non-U.S. organizations to ‘design-out’ or avoid buying U.S. origin space-related products or services”

- “Several European companies prefer not buying US designed and manufactured products because they are afraid of ITAR. They will ask local European suppliers to design similar products to the ones designed by [respondent]. These products made by competitors are then available on the US market and compete directly with our product lines. The competition is somewhat unfair because these competitors benefit from economy of scale by being able to sell their product in many different markets, including the USA.” – Very small company
- “Almost all foreign customers buy ITAR free products if available.” – Large company.
- “I've seen several "US ITAR-free" tags listed on advertisements for non US companies in our industry.” – Very small company
- “[Respondent] has non-US based R&D facilities that are evaluating the development of "ITAR-free" space-related products to grow [Respondent's] global space business.” – Very large company
- “Non-US organizations prefer to offer our non-US competition opportunities and are willing to pay a higher price to avoid dealing with a US supplier that is under EAR or ITAR restrictions” – Large company

## “Caused relocation of space-related production/ R&D facilities outside the U.S. due to regulatory burdens”

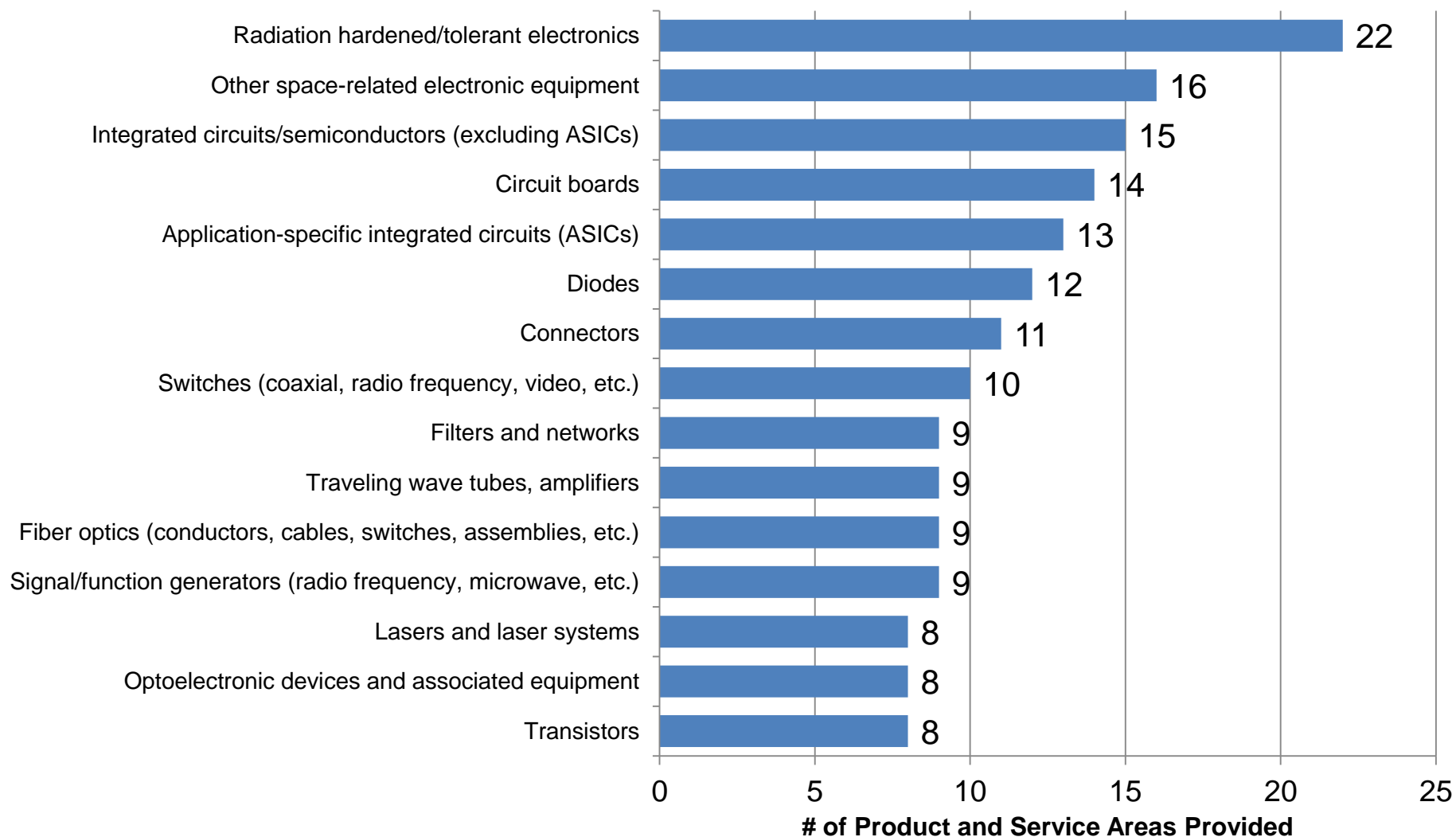
- “We have existing facilities in Europe so when we are approached by a company in Europe with a request, we have them work with our European counter parts rather than work with us here in the US. Our company may still get a sale, but we do not in the US.” – Large company
- “We have recently formed a subsidiary in Canada (Quebec) to perform R&D activities. This was done due to both ITAR issues and because Quebec has such remarkably good R&D programs (tax and financial incentives).” – Medium company
- “We have a full production capability in France to handle all non-US business because it is nearly impossible to sell Space related product from the US due to ITAR.” – Very large company

## Top 15 R&D Areas Provided by Respondents Utilizing U.S. Space-Related Export Controls



Source: U.S. Department of Commerce, Bureau of Industry and Security,  
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## Top 15 **Electronic Equipment Areas** Provided by Respondents Utilizing U.S. Space-Related Export Controls



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